

What is claimed is:

1. A substrate for an optical recording medium, comprising:
a plurality of recording tracks formed at least in guide grooves on a disc; and

an address section comprising an address pit sequence formed between said recording tracks in said guide grooves along an information reading direction of said recording tracks, and wherein:

said recording tracks in said guide grooves are divided into a prescribed number of zones, and

in each of said zones, the center of said address section corresponding at least to the recording track in the radially outermost or radially innermost guide groove is disposed so as to shift in a radial direction of said disc in relative relationship to the center of said recording track in said guide groove.

2. The substrate for an optical recording medium according to claim 1, wherein

said address section comprises a pair of intermediate addresses located at positions shifted relative to each other in the radial direction of said disc, and

the center of said address section is represented by a center line extending between center axes of said intermediate addresses.

3. The substrate for an optical recording medium according

to claim 1, wherein the direction of shift of the center of said address section is reversed between the shift relative to the radially outermost recording track and the shift relative to the radially innermost recording track in the same zone.

4. The substrate for an optical recording medium according to claim 3, wherein the amount of shift of the center of said address section decreases continuously or in a steplike manner within said each zone from the radially outermost or innermost portion of said each zone toward the center thereof.

5. The substrate for an optical recording medium according to claim 1, wherein said substrate is used to produce an optical recording medium in accordance with a prescribed production method, and wherein

the amount and direction of shift of the center of said address section are determined so as to offset the amount and direction of shift of the center of said address section that appear in a signal reproduced from said optical recording medium when said optical recording medium is produced by said production method using a calibration substrate on which the amount of shift of the center of said address section is set to zero.

6. An optical recording medium comprising a phase change type thin film recording layer formed on an upper surface of the substrate for an optical recording medium as described in any one of claims 1 to 4.

7. The optical recording medium according to claim 6,

wherein said phase change type thin film recording layer is initialized in advance.

8. A master disc used to produce the substrate for an optical recording medium as described in claim 1, wherein portions corresponding to said guide grooves and said address section are formed on a glass master disc having a photoresist layer.

9. The master disc recording apparatus for producing the master disc of claim 8 used to produce the substrate for an optical recording medium, said apparatus comprising:

a light source for photographically exposing said photoresist layer on said glass master disc;

an optical modulator for optically modulating light of said light source in accordance with an address signal; and

a deflector for deflecting said optically modulated light, wherein;

said deflector is an EO deflector which deflects said optically modulated light in such a manner that (a) in an area for said recording tracks, parallel or wobbled guide grooves are formed, and that (b) in an area for said address section, a beam of said light is shifted in the radial direction of said master disc so that, in said each zone, the center of said address section corresponding at least to the recording track in the radially outermost or radially innermost guide groove shifts in the radial direction of said disc in relative relationship

to the center of said recording track in said guide groove.

10. A master disc recording apparatus for recording information on the master disc of claim 8 used to produce the substrate for an optical recording medium, said apparatus comprising:

a light source for photographically exposing said photoresist layer on said glass master disc;

an optical modulator for modulating light of said light source in accordance with an address signal; and

a first EO deflector for deflecting a beam of said optically modulated light in synchronism with timing of said address signal, and thereby forming said address section by making the center of said address section coincide with the center of said recording track in said guide groove; and

a second EO deflector for accepting the light output from said first EO deflector, and for applying an offset by deflecting said light beam in the radial direction of said master disc in such a manner that (a) in an area for said recording tracks, said guide grooves are formed so as to wobble along the direction of said address pit sequence, and that (b) in an area for said address section, in said each zone the center of said address section corresponding at least to the recording track in the radially outermost or radially innermost guide groove shifts in the radial direction of said disc in relative relationship to the center of said recording track in said guide

groove.

11. The master disc recording apparatus according to claim 10, wherein the direction in which said light is deflected by said second EO deflector in said address section is reversed between the deflection relative to said radially outermost recording track and the deflection relative to said radially innermost recording track in the same zone.

12. The master disc recording apparatus according to claim 11, wherein the amount of deflection applied by said second EO deflector in said address section decreases continuously or in a steplike manner within said each zone from the radially outermost or innermost portion of said each zone toward the center thereof.

13. The master disc recording apparatus according to any one of claims 9 to 12 for recording information on a master disc used to produce a substrate for an optical recording medium, wherein said substrate is used to produce an optical recording medium in accordance with a prescribed production method, and wherein

the amount and direction of said light beam deflection applied by said second EO deflector are determined so as to be able to offset the amount and direction of shift of the center of said address section that appear in a signal reproduced from said optical recording medium when said optical recording medium is produced by said production method using a calibration

substrate on which the amount of shift of the center of said address section is set to zero.

14. A signal generating apparatus, used in the master disc recording apparatus of claim 9, for generating a signal for driving said EO deflector, wherein

said signal generating apparatus supplies said optical modulator with a binary signal corresponding to said address signal, and

supplies said EO deflector with (a) in the case of said recording track area, a voltage for forming parallel or wobbling guide grooves, and (b) in the case of said address section area, a shift voltage for deflecting said optically modulated light in such a manner as to shift said light beam in the radial direction of said master disc so that, in said each zone, the center of said address section corresponding at least to the recording track in the radially outermost or radially innermost guide groove shifts in the radial direction of said disc in relative relationship to the center of said recording track in said guide groove.

15. A signal generating apparatus, used in the master disc recording apparatus of claim 10, for generating signals for driving said first EO deflector and said second EO deflector, wherein

said signal generating apparatus supplies said optical modulator with a binary signal corresponding to said address

signal,

supplies said first EO deflector with a voltage for deflecting said optically modulated light beam in synchronism with the timing of said address signal, and thereby making the center of said address section coincide with the center of said recording track in said guide groove; and

supplies said second EO deflector with an offset voltage for deflecting said light beam in the radial direction of said master disc in such a manner that (a) in said recording track area, said guide grooves are formed so as to wobble along the direction of said address pit sequence, and that (b) in said address section area, in said each zone the center of said address section corresponding at least to the recording track in the radially outermost or radially innermost guide groove shifts in the radial direction of said disc in relative relationship to the center of said recording track in said guide groove.

16. The signal generating apparatus according to claim 14 or 15, wherein the polarity of said shift voltage supplied to said EO deflector or said second EO deflector is reversed between the voltage for said radially outermost recording track and the voltage for said radially innermost recording track in the same zone.

17. The signal generating apparatus according to claim 14 or 15, wherein the polarity of said shift voltage supplied to said EO deflector or said second EO deflector decreases

continuously or in a steplike manner within said each zone from the radially outermost or innermost portion of said each zone toward the center thereof.

18. The signal generating apparatus according to claim 14 or 15 used in a master disc recording apparatus for recording information on a master disc used to produce a substrate for an optical recording medium, wherein said substrate is used to produce an optical recording medium in accordance with a prescribed production method, and wherein

the magnitude and polarity of said shift voltage supplied to said EO deflector or said second EO deflector are determined so as to offset the amount and direction of shift of the center of said address section that appear in a signal reproduced from said optical recording medium when said optical recording medium is produced by said production method using a calibration substrate on which the amount of shift of the center of said address section is set to zero.